

Subject: glowbugs V1 #220

glowbugs

Thursday, January 8 1998

Volume 01 : Number 220

Date: Wed, 7 Jan 1998 15:01:15 -0500

From: "Ornitz, Barry L" <ornitz@eastman.com>

Subject: Grid Dippers, was C and L meters

All the talk about capacitance and inductance meters brings up some interesting points. The inexpensive C and L meters do a fairly good job of measuring capacitance and inductance respectively, but they usually do not measure the dielectric losses in capacitors (power factor, loss tangent) or the resistive losses (Q, dissipation factor) in inductors. This may not be much of a problem with well characterized capacitors and inductors, but for "hamfest specials" it can be. Small mica capacitors usually have very low dielectric losses, whereas these are higher in ceramic capacitors, higher yet in most plastic film capacitors, and exceptionally high in electrolytics. This relationship is fairly well known and documented. Inductors are a different matter. With the rise in popularity of switching power supplies, surplus inductors are plentiful. But do you know if they will work at RF? Most will not, the ferrite cores are designed for much lower frequencies. These C & L meters give values at whatever frequency they are designed for, but they tell you very little about the suitability of that particular component in an RF circuit. Often too, the values of capacitance and inductance generally needed at RF are well below the full-scale reading for the most sensitive ranges of these meters.

Unless you are building audio filters from design formulas, knowledge of the actual value of capacitance or inductance is rarely needed. For bypass or coupling applications, for example, capacitor values can vary considerably without affecting circuit performance much. In tuned RF circuits, values are generally more critical but either an inductance or capacitance or both must be varied to get the circuit "on frequency". So measurement to high accuracy is not needed either.

What I am getting around to is that if you have a few extra dollars to spend on test equipment, and you want to work at RF, a grid-dip oscillator (GDO, grid dipper, and variations like solid state versions, a.k.a. Heath tunnel dipper) is a better buy. These can act as a simple signal generator or absorption wavemeter (not terribly stable or accurate but still useful). They can measure the resonant frequency of a tuned circuit, a transmission line stub, or an antenna. AND, they can be used to measure low values of capacitance and inductance. All you need is one or two known values of capacitance, and an inductor whose value can be measured with the unit.

Check out many of the older ARRL handbooks for GDO use. With a little experience, you can judge from the depth and width of the meter dip how well the capacitor or inductor will work in the frequency range of interest - something those inexpensive C & L meters cannot.

At home, I have two General Radio bridges, one for capacitance only, and the other for L, C & R. They are rarely used. At work, I have an old GenRad bridge that I can read capacitance (accurately) to 5 or 6

significant figures.

It is great for studying dielectric materials but useless for ham radio!

I have a rather large number of signal generators too. But with a new hamfest "goodie" (receiver or transmitter) to test, my handy old Allied GDO is easiest to use. In fact, I got along for many years with only a VTVM and GDO and a reasonably well-calibrated SWL receiver for test equipment.

So if you see a GDO for sale at a reasonable price, go for it. For home brewing radio gear, it will be one of the most handy things you will ever use.

73, Barry L. Ornitz WA4VZQ ornitz@tricon.net

Date: Wed, 07 Jan 1998 15:58:10 -0800

From: Jim Conn <jconn@gte.net>

Subject: Re: C and L meters

I purchased the AADE kit, and have been totally satisfied with it. It is an LC meter. Mighty handy for building glowbug LC circuits! The web site is <http://www.aade.com> The owner is a ham. The kit is not much less cost than the Tenma unit, and doesn't do resistance, but you get the fun of building it. I didn't need the resistance function anyway, I already had a multimeter for that.

Regards,

Jim - AD4VL

Dexter Francis wrote:

>

> I recently bought a Tenma 72-875 LCR meter, after
> having bought and returned two other types from TechAm,
> because they lacked a zero capability or weren't able
> to measure capacitance below 40 pf accurately. The
> Tenma has been the best \$100 I've spent in a long
> time.

>

> Ranges:

>

> 0 to 200pf, 2 nf, 20 nf, 200 nf, 2 uf, 200 uf, and 2000 uf
> 0 to 200 uH, 2 mH, 20 mH, 200 mH, 2H, 20 H, 200H
> 0 to 20 ohms, 200, 2k, 20k, 200k, 2M, 20M

>

> -df

> -----

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> Visit our Web site at <http://www.xmission.com/~cwest/>

> e-mail to: tubes@usa.net -or- cwest@xmission.com

> P.O. Box 22443, Salt Lake City, Utah 84122

Date: Wed, 07 Jan 1998 17:49:38 -0700
From: Steve Lords /WA7ISL <sklords@sprynet.com>
Subject: Re: C and L meters

is the tenma meter a stand alone unit??
and where do you get one???
thanks
steve
wa7isl

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> 0 to 200pf, 2 nf, 20 nf, 200 nf, 2 uf, 200 uf, and 2000 uf
> 0 to 200 uH, 2 mH, 20 mH, 200 mH, 2H, 20 H, 200H
> 0 to 20 ohms, 200, 2k, 20k, 200k, 2M, 20M
>
> -df
> -----
> Need to Buy or Sell Tubes, Parts or BA Gear?
> Visit our Web site at <http://www.xmission.com/~cwest/>
> e-mail to: tubes@usa.net -or- cwest@xmission.com
> P.O. Box 22443, Salt Lake City, Utah 84122

Date: Wed, 7 Jan 1998 19:46:30 -0600 (CST)
From: Kevin Pease <hamradio@mm1001.theporch.com>
Subject: Re: Grid Dippers, was C and L meters

I'll second Barry on the GDO topic. I have twon and havn't been without one for years and would never be without one. So if you can get a GDO go for it.

Kevin Pease
WB0JZG
Mount Juliet, TN.

Date: Wed, 07 Jan 98 22:51:54 PST
From: "C-W Crystals" <cwxtal@u-n-i.net>
Subject: WTB T-368 Xmtr. cabinet

Hi gang,

Does anyone know where I might locate a cabinet for the T-368 drawer unit's? I have the drawer's, and manual and am in need of the cabinet.
73 John

Date: Thu, 8 Jan 1998 16:45:31 -0500 (EST)
From: leel@digital.net
Subject: Antenna

>To: GB
>From: leel@digital.net
>Subject: Antenna
>
>Hi Gang
>Thanks to all who responded to my last email asking about a 2meter ant.
>HOWEVER I got a scanner and when using it did something dumb
>which loaded up my hard drive and it crashed. So there went all the good
> info you sent me. The rig arrived in fb shape and now I need the info.
>SO PLEASE THOSE OF YOU WHO SENT ME INFO ON HOW TO BUILD ONE
>WILL YOU PLEASE SEND IT TO ME AGAIN SORRY!!!!
>
>

Thank the good LORD for all that you have!!!

67yr old semi disabled senior trying to get code speed to 13wpm
(stroke got my eyesight, balance & coordination) SO ONLY BA'S NO SOLID STATE

Leon (lee) Wiltsey 4600 Lake Haven blvd Sebring fl. 33872 KF4RCL TECK+

End of glowbugs V1 #220
